requiring a very high electrolytic intensity for their decomposition.

723. The establishment of the principle that a certain electrolytic intensity is necessary before decomposition can be effected, is of great importance to all those considerations which arise regarding the probable effects of weak currents, such for instance as those produced by natural thermo-electricity,, or natural voltaic arrangements in the earth. For to produce an effect of decomposition or of combination, a current must not only exist, but have a certain intensity before it can overcome the quiescent affinities opposed to it, otherwise it will be conducted, producing no permanent chemical effects. On the other hand, the principles are also now evident by which an opposing action can be so weakened by the juxtaposition of bodies not having quite affinity enough to cause direct action between them (648), that a very weak current shall be able to raise the sum of actions sufficiently high, and cause chemical changes to occur.

724. In concluding this division *on the intensity necessary for electrolysation, I* cannot resist pointing out the following remarkable conclusion in relation to intensity generally. It would appear that when a voltaic current is produced, having a certain intensity, dependent upon the strength of the chemical affinities by which that current is excited (651), it can decompose a particular electrolyte without relation to the quantity of electricity passed, the *intensity* deciding whether the electrolyte shall give way or not. If that conclusion be confirmed, then we may arrange circumstances so that the *same quantity* of electricity may pass in the *same time,* in at the *same surface,* into the *same decomposing body in the same state,* and yet, differing in intensity, will *decompose in one case and in the other not:*—for taking a source of too low an intensity to decompose, and ascertaining the quantity passed in a given time, it is easy to take another source having a sufficient intensity, and reducing the quantity of electricity from it by the intervention of bad conductors to the same proportion as the former current, and then all the conditions will be fulfilled which are required tr

produce the result described.

If iii. *On associated Voltaic Circles., or the Voltaic Battery*

725. Passing from the consideration of single circles (6
etc.) to their association in the voltaic battery, it is a ver